Interview with RADM Robert Conard, MC, USNR (Ret.). Dr. Conard (?-2001) was medical officer aboard USS *Montpelie*r (CL-57). Took part in the Battle of Empress Augusta Bay in November of 1943. Interview at Setauket, NY, November 9, 1993, participated in Operation Crossroads. Conducted by Jan K. Herman, Historian, Bureau of Medicine and Surgery.

Why don't we start at the beginning. You say you were born in Jacksonville, FL, and your father was in the Navy. Was he a physician, also?

No. He was a civil engineer. He had worked on the Panama Canal in the early 1900s. When the uprisings in Haiti occurred around 1917 or '18 he became a Navy lieutenant and we moved to Haiti. I was about 4 or 5 years old then, and we lived on the island for 4 years.

Those were very exciting times because of the revolt of the natives there; the so-called Cacos, guerrilla groups, were causing problems. My dad was involved in putting in sewers and waterworks in Port-au-Prince and later Cap-Haïtien, so that he had his hands full with the native rebellion going on. I can't remember too much about it except that it was an exciting time of life.

We later moved to South Carolina, where my dad left the Navy and got involved in engineering work. I went to the University of South Carolina and finished there in 1937 and then went to medical school in Charleston--the Medical College of South Carolina, and finished there in 1941.

In my junior year at medical school I realized that the U.S. was likely to go to war. The war in Europe had become worse, and it appeared to me that I would probably have to go in the service at one time or another. So I took the exams for the Navy Medical Corps and passed them, and when I graduated the following year, I was given a commission as lieutenant junior grade and was ordered to Washington for medical internship at the old naval hospital there. I later continued my internship at the National Naval Medical Center in Bethesda, Maryland. We were given additional duties in civilian hospitals in Washington for obstetrics and gynecology, which were not available in Bethesda.

Did you have a specialty you were interested in?

Not really. At that point I wasn't sure just what branch of medicine I wanted to go into. The internship was fairly rigorous. When the Pearl Harbor attack occurred in December 1941 we knew we were in for it, and all of us young medical officers at the hospital knew that when we finished our internship, we were going to have to go to war. Realizing that, we made the most of the time remaining with parties and good times and a last fling before we had to go to war.

My uncle was a rear admiral in the Supply Corps and was Paymaster General at that time. I got a call from the Navy Department and, I think out of deference to my uncle, asked me if I'd be interested in submarine duty or duty on a warship. I said, "Well, I'd prefer a warship to submarine duty." So they assigned me to a light cruiser, the Montpelier (CL-57), which was under construction at Camden, NJ. In July, I went to Camden, and the ship was under construction. I found a place to live and was joined there by my shipmates as reported for duty.

I was impressed with the amount of shipbuilding going on at Camden Navy Shipyard. It was not under the Navy but a civilian yard, the New York Shipbuilding Company. I was impressed with the tremendous amount of activity, with workmen on the sides of our new ship, the flare of acetylene torches, the smell of hot metal, and the clanging noises of construction.

We were assigned a place in the building near our ship in one of the large warehouse buildings, and that's where we first congregated as a crew. As medical officer, I was joined by the senior medical officer, Dr. [Paul M.] Crossland, and then a dentist, Dr. [Robert D.] Schindler. We carried out the inoculations and checked over the men. On the ship we established the medical facilities (sick bay, pharmacy, dental office, operating room, and battle dressing stations). We had two battle dressing stations, one forward and one aft, and these had to be outfitted throughout the ship. So there was an awful lot of work throughout the ship. Everything was going on at a rapid pace, because there was a dire need for warships, particularly in the Pacific.

Was the <u>Montpelier</u> already in the water?

No. It was still in dry dock being completed. It was not until September that she was finally completed and we were able to board the ship. Then it was towed over to the Philadelphia Navy Yard, where we carried out the commissioning ceremonies, which was quite an impressive event for us. We were all in dress whites and everybody was lined up on the deck for the ceremony. The ship was commissioned on the 9th of September.

Of '42?

Yes, '42. We were busy then in getting the ship ready for war, and everything had to be done posthaste; it was quite an active period. A lot of the crew were green and had never been to sea, but everybody worked together beautifully, and we were able to get the ship in pretty good shape in record time.

In December we sailed down the Delaware River into the Atlantic in a big snowstorm. When we got into the Atlantic, it was very rough, and the submarine danger was extreme at that time. Going down the coast, we were in convoy with several other ships heading south. We didn't know where we were going.

I remember being on deck. Most of the crew was seasick because we hit a terrible storm off Cape Hatteras. I was fortunate in that I was just a little squeamish and was able to be out on deck. I remember the captain turned to me and said, "Would you help keep a lookout for submarines?"

I said, "Well, I'll try." But I didn't know how to look out for submarines, and in those huge waves, I don't think I would have seen one anyway.

As the ship got further south into the Caribbean, it became beautiful, with calm blue water and soft breezes. It was a welcome relief from the cold wintry weather we'd just left in Philadelphia.

We got to the Panama Canal, and that was an exciting experience going through the canal and the locks. When we got to the other end, I wanted to see my sister, who lived in Panama, but they wouldn't let me contact her or go ashore because of security. They didn't want anybody to know that our ship was there.

So I had to spend Christmas Day on the ship with the rest of the crew. We had a little party on the fantail and sang some songs, Christmas hymns and carols. I had bought some candy in Philadelphia. I was the recreation officer. This candy was in my cabin during the rough weather off North Carolina, and a wave had come right down into my cabin and all that chocolate had floated around in saltwater. We ate the candy anyway, even though it was salty and mushy.

What did the sick bay look like? Can you recall the equipment?

The sick bay, as I recall, had about 20 bunks. I don't recall anything specifically about the sick bay itself.

Was there an OR table or anything like that?

Oh, yes, we had a well equipped operating room. On several occasions, such as when we had an influenza epidemic, we had to also use the Marine compartment next to the sick bay.

When did that happen?

That was later on, in the Pacific. I suppose it was sometime in the fall of '43 that we had the epidemic of influenza.

You were the junior medical officer aboard. How many other physicians were there?

There was one other physician and a dentist. Dr. Crossland was my first senior medical officer. I had two other senior medical officers while I was on board--Drs [Thomas] Butler and Holcomb.

How about corpsmen? How many corpsmen did you have?

I think we had about 18 to 20 corpsmen.

So you left the Panama Canal and you started heading...

We headed into the Pacific and zigzagged our way southwest. On our way to the South Pacific we had the plane accident. We had two SO3C-1 Seagull Scout Observation seaplanes on the fantail on two catapults and they were testing how much weight the plane could carry. Unfortunately, too much weight was added and the plane went down. The plane had depth charges on the wings and when it went down they exploded.

Was the plane catapulted off or did it just fall in?

It was catapulted off, and he tried to rise, but couldn't. He just went down into the water, and the depth charge went off. I was on the rescue squad, and we went out in our whale boat. The radioman, the other man on the plane was fine, but the pilot's chest was crushed. I tried to give him artificial respiration, and my hands just went through into his chest and I knew it was hopeless; he was gone. The crew was lined up on the deck when we brought the body aboard.

When we got back to the ship we had to plan a burial at sea. It was a very sad time for us, because we had to get all his personal effects together and notify his family.

He was a very popular man?

Yes, he was a very popular man on the ship, and I had liked him very much. It was a blow to us when we had to bury him at sea. It was our first burial at sea. We were on the fantail, and the bugle was playing "Taps" and we were singing the Navy Hymn as the body slid into the water.

Then we crossed the equator.

Did you have a crossing-the-line ceremony?

Yes, and we had some hazing that went on. I was a pollywog--I had never been across--and was a little bit apprehensive about what was going to happen. Some of us were blindfolded and we went through a line where they gave us a few licks. Then they made us do some funny things before the Court of King Neptune. Everybody had a good time. It was a fun type of ceremony.

What was your relationship with Dr. Crossland? He was the senior, you were the junior. How did you both work together?

Oh, we worked very well together. There was no problem. We held sick call together. He was only on board for several months, and then Dr. Butler relieved him.

Dr. Butler appeared unhappy. I think he missed his family terribly. This just wasn't for him.

He was followed by Dr. Holcomb. He was very likeable, played the ukelele, and sang Hawaiian songs.

We had a good group of corpsmen, and the medical department worked very efficiently on the ship.

Following your crossing of the line, it wasn't long before you were pretty close to Guadalcanal.

We were first based at Espiritu Santo in the New Hebrides, and from then on we got more and more heavily involved in the war, later being based at Purvis Bay near Guadalcanal.

What was a typical day? You got up about what time?

We got up early in the morning, at dawn. We went to battle stations and stayed for a couple of hours, and then we came back, had breakfast, and then we would hold sick call. From then on we took care of any medical cases that needed attention.

Since I was a junior officer I had several other duties assigned to me. The most onerous one was coding and decoding of classified messages. This 4-hour watch, usually at night, was very tiring and tedious. Another assignment was the censoring of the crew's mail. As I mentioned, I was in charge of the rescue squad and on a number of occasions we had to leave the ship on various missions.

My most enjoyable additional duty was that of recreation officer--organizing recreation on the ship such as "Happy Hour," playing popular records over the speaking system, arranging song fests, boxing bouts, entertainment in the evening, and organizing the Montpelier Glee Club. For liberty parties ashore there were beer parties, cookouts, baseball, etc. It should be pointed out that recreational activities frequently had to be canceled or interrupted because of urgent departure of the ship on missions.

Where was your battle station?

I was in the after-battle dressing station, which was between the 6-inch gun turrets in the after part of the ship. It was a very noisy place when the guns went off, I'll tell you, and the air would fill with dust and smoke. It was a nerve-racking place to have to sit for the long periods of time at general quarters.

You couldn't see anything, so you didn't know what was going on.

No. We were below deck and most of the time didn't know what was going on. Some times the situation was announced over the speaking system. I remember one time it was announced, "There's a torpedo heading for the ship." Fortunately, it turned out to be a dud, but it was nerve-racking, to say the least.

It hit the ship, didn't it?

It hit the ship, but it didn't go off. We were very fortunate in that our ship was never torpedoed. We were hit with other shells but never torpedoed. However, on one occasion our ship swerved in time to miss a torpedo which unfortunately slammed into our sister ship, the Denver (CL-58), which was badly damaged with many casualties.

The first action you had was fairly close to Guadalcanal, wasn't it?

Yes, it was just south of Guadalcanal. Our four cruisers and a number of destroyers were heading for the Rennell Islands, supporting the landings there. I was on the bow of the ship, enjoying the beautiful sunset, with the mountains of Guadalcanal in the distance, and all of a sudden one of the cruisers started firing into the night. I thought, "Well, this is a hell of a time to start practice firing." But then before I could think again, Jap planes started diving and general quarters sounded.

You were topside at this point.

Yes, I was up in the bow of the ship. The planes came in and started strafing the deck. Naturally, I was very scared. I went frantically aft to get down to my battle station, found a door I could get into, and went down the ladder. A sailor ahead of me fell at my feet. I told him, "This is the real thing. Get to your battle station." I thought he had just slipped and fallen, and then I looked and saw the blood spurting from his chest. We were, fortunately, very near the dressing station and we dragged him back in there, There wasn't much I could do, because he had just about bled to death at that point. I tried injecting some adrenalin into his heart as a last measure, but he died anyway.

The Japanese torpedo planes were diving, trying to hit the ship, and the ship was turning and twisting to avoid being hit. Our dressing station was in the chiefs' mess quarters. I said, "Let's get under the table," which we did, and it was a very trying experience, with this poor shipmate lying there in a pool of blood and the ship bouncing around.

How long did all this last? It couldn't have been very long.

It must have lasted about an hour or so. I can't remember exactly. The next morning I went topside, and the Chicago (CA-29) was listing in the water. It had been torpedoed, and I think there were about 60 men lost. Then our ships were ordered back. We had no refrigeration for preserving the dead, so we put the sailor in a paint locker. Unfortunately, before we could get back to Espíritu Santo, our base, the body began to smell a little bit, and I noted the chow lines were not as long.

His brother was on board, wasn't he?

It was sad. His brother was on the ship.

So he was not buried at sea? He was buried ashore at Espíritu Santo?

He was buried ashore, because the captain must have felt it was close enough to our base to get back within reasonable time, so we didn't have to bury him at sea.

So he was the only casualty of that action off Rennell Island?
He was the only casualty on our ship of that action.

Was there other damage that had been done to the ship from the planes?
Not really. Apparently, the strafing didn't really faze the ship very much. Of course, the Chicago was badly damaged.

Did you see the Chicago go down?
No. We were ordered back. It has been looked upon as a mistake that they ordered us back, because if we had stayed on, we might have been able to intercept the returning Japanese planes that sank the Chicago. But we were ordered back, so we were not there to help them.

Did you take any of the survivors on board from the Chicago?
No. I think the destroyers that were near the Chicago took on the survivors.

You went back to port then?
We went back to port.

You probably don't remember it. There was a lot of activity going on after that.
From this time on our ship was heavily involved in the war. Our mission, under Admiral Halsey, was mainly to intercept the "Tokyo Express," the Japanese ships coming down to reinforce Guadalcanal and later New Georgia and Bougainville.

So your ships were in the slot to intercept, but also for shore bombardment to soften up positions that the Marines were going to try to...
That's right, yes. There was a lot of shore bombardment.

When shore bombardments were taking place, were you at your BDS [battle dressing station] at that point or were you on deck?
I was in my battle dressing station. The only times I was able to get out was when the firing ceased and we were able to observe what was going on ashore.
You said your battle dressing station was near the aft 6-inch mounts. When those would go off, you said all hell broke loose down there, dust and paint coming down on your head. And the 5-inch guns were going, too, so you had all this. And then, of course, if there was aircraft activity, the 40 millimeters. Could you hear the 40 millimeters going?
I can't remember if I could. It was pretty difficult in the uproar to distinguish one gun from another.

So you were down there most of the time, and essentially blind, because all this going on upstairs. What's going through your mind at a time like that? Are you thinking, "I don't want to be in here. This is not a good place to be, a safe place"?
You resign yourself to the fact that this is where you've got to be, and keep your fingers crossed that the ship doesn't get hit and that you come out of it all right.

What did you do for food down there?

We would have sandwiches sometimes and coffee. Somebody from the galley would come by and bring some stuff to eat. But we couldn't eat regular meals. I mean, we went many times without regular meals. But nobody suffered with malnutrition that I could ever see.

How long would you be down there, for example, for an extensive situation?

It varied a lot with the operation. For instance, in Empress Augusta Bay, the Battle of Empress Augusta Bay in November of '43.

It's just 50 years ago this month.

That's right. This battle was preceded by bombardment of the Shortland Islands and other islands near Bougainville the day before. We were at our battle stations a long time for those bombardments, practically all night. Then we got word the next day that the Japanese fleet was coming down, and we had to turn around and head north to try to intercept them, and that night the Battle of Empress Augusta Bay took place. It was a long battle--about 4 or 5 hours.

It was one of the outstanding battles the Montpelier was involved in, with all the cruisers acting in concert. The training that Admiral "Tip" [RADM Stanton] Merrill had done really paid off in that battle, because the cruisers would turn together in concerted movements that baffled the Japanese. There were smoke screens and flares lighting the night. This is what made it such an interesting battle. After several hours we got the better of it, and the Japanese fled. We sank a number of their ships.

The next morning as we headed south we had an air attack with about 100 Japanese planes attacking. A shell from a plane hit the fantail on the catapult, which is only about 20 feet from where I was below deck. A large number of Japanese planes were downed in this attack.

Were there any casualties from the hit on the ship?

Yes, there were some casualties. We had one man that had some metal that pierced his head into the brain. We had to get him off the ship to a hospital because we couldn't take care of him; it was too complicated. So in about 36 hours there, we went through one hell of a lot of battle and manning of battle stations.

During that 36 hours, then, you were pretty much at your battle dressing station.

Yes.

And didn't come out.

No, except there was a break after the big night battle. The next morning I was able to come on deck to a scene I'll never forget. The deck was littered with shell cases. Everybody was exuberant because of the victory, and we would slap each other on the shoulders in camaraderie. Despite the fact that we were worn out, unshaven, sweaty, and dirty, it was such a wonderful feeling to know that you had won. The comradeship, you feel with your fellow sailors at such a time is something you can't appreciate until you've experienced it.

You weren't given a blow-by-blow while you were below, were you? Did you know what was going on?

Some of it, yes. They had a radioman, a man that talked on the loudspeaker system every now and then to try and bring us up to date on what was going on.

So you knew you were winning.

We knew that we were doing all right.

When we headed back down to our base at Purvis Bay in the southern part of the Solomons near Guadalcanal, everybody was just worn out from being involved in such a lengthy combat.

I remember when we pulled into the bay, there was a message to the admiral saying, "Is there anything that you need?"

He answered with one word, "Sleep."

I read Pacific Diary, because you had recommended it for those who really wanted to get a feel from the enlisted side. Of course, Fahey talks about the heat, the stifling heat below decks. Here you were in your battle dressing station, un-air conditioned, obviously. Did you have heat casualties to deal with?

Well, we did at times, yes. The heat was a real problem, and, of course, we had no air-conditioning as we know it today. There was a ventilation system on the ship, but that was turned off during battle, so you just had to sweat it out. The dust and smoke that filled the compartment would cause your nose to run and your sweaty skin to itch. It was pretty miserable if you were there for long periods of time. We had to treat a number of cases of heat rash and sometimes heat exhaustion.

If you were down there for 36 hours with all that stuff going on, you must have been a mess by the time you came out of there.

Everybody was sweaty, unshaven, and very tired.

Fahey talks about heat rash and running sores, running sores that you had to take care of in all this mess. How did you take care of that? You didn't have a dermatologist aboard. It was all up to you.

Taking care of the heat rash was a very difficult, mainly unsuccessful because of the fact that they were continuously subjected to sweating and continued heat, and there was not much you could do to help with the situation. We also had a lot of fungus infections, and we could take better take care of those. We had salt tablets available to help prevent heat exhaustion.

Did you use some kind of topical treatment for fungus infections?

Yes. We used topical treatment. We did have some sulfa drugs and anti-fungal ointments. I've forgotten exactly what other drugs we used. We had none of the antibiotics presently used.

Gentian violet, maybe?

Yes, we used that. We were able pretty much to help with the fungus infections. But the heat rash in some cases got to be pretty bad with blistering over the body.

At one point--this is a quote--Fahey says, "The doctor (and I guess this may be Dr. Butler) gave orders for all hands to shower and put on clean clothing in case someone is wounded." Do you remember that?

Yes, we had that rule. Before any possible engagement, we would announce over the loud speaker system for everybody to take a "Navy shower" and get into clean clothes to prevent any possibility of infection if wounded. Due to the limited supply of water on the ship the "Navy shower" consisted of a brief wetting, soaping, and rinsing.

I'm sure that must have helped.
I think it may have helped.

I want to ask you about your battle dressing station. What kinds of equipment did you have to deal with things down there?
Of course, we had litters.

Stokes litters, the wire litters?
Yes. Basically we had first-aid equipment. We naturally couldn't expect to do too much in the way of treatment in the dressing stations. We assumed that we would take them to the main medical facility as soon as the battle was over. Of course, I had adrenalin, morphine, etc. to inject. As I remember, we had first-aid material, but we weren't equipped to take care of any very serious casualties in my battle dressing station.

You mention an appendectomy in your book. Do you recall that episode? You didn't have many of those to deal with?
We had several appendectomies while I was on the ship, acute appendices which we operated on. The one occasion I describe in my brochure was when the senior medical officer asked me to do the operation. He felt that I was competent to do it. I had done a few appendectomies while I was in the internship. The sea was very rough. We got the appendix, cut the appendix out, and my assistant, in a sudden lurch of the ship, dropped the infected stump in the abdomen. We frantically recovered it and were able to tie it off. Of course, at that time on the ship we didn't have penicillin available.

Sulfa was all you had.
Sulfa was all we had. So we poured a sulfa drug into the abdomen and closed him up. The patient made an uneventful recovery.

I wanted to ask you just a few more questions about the <u>Montpelier</u>, and then we can move on to the other material. I want to talk about the Kula Gulf battle? What do you remember about that? Was that pretty similar to the others?
One night we headed up the slot to the Kula Gulf area in New Georgia. Our radar had improved considerably by this time, and the Japanese radar was inferior to ours. I remember that we surprised them, and sank two of their ships before they even knew we were there. I remember that was great news to us.

In your book, you talk about the sudden loss of Captain Wood and what a shock that was. Was there any indication that he had been ill?
No. I don't recall that prior to this episode he had been ill. His illness was very sudden. We were, fortunately, in the area where there was a base hospital. When he started getting weak from loss of blood--he had a bleeding ulcer--we got him ashore right away. His death was very

unfortunate. What happened was that the blood transfusion was mistyped, and he had an acute reaction and died.

That transfusion was done at the base hospital?

Yes. His death was a great blow to us, because he was such a fine man. He was a Virginian, a Southern gentleman if you ever saw one, just a great guy, loved and respected by all.

And then you got a new skipper at that point.

Yes. I might mention at this point that I had an opportunity to visit several of the field hospitals at Espiritu Santo, Guadalcanal, Tulagi, and New Georgia. I was impressed with how well equipped and well run those hospitals were.

I shall never forget my trip to the hospital on Guadalcanal. The aviator on our ship flew me over in our SOC plane. He proceeded to give me a unexpected thrill. He skimmed over the mountainside, barely above the palm trees, and did acrobatic maneuvers including flying upside down. Badly shaken, I was relieved when we landed near Henderson Field.

On another occasion I visited the Naval Field Hospital at Tulagi. I spent a delightful day with "Pappy" [Allan S.] Chrisman whom I had known in Bethesda.

You talk in your book about [William F.] Halsey's visit to the ship. He came aboard, didn't he?

Yes, a number of times.

What do you remember about him?

Halsey was a character. You could never forget him, because he certainly deserved the name of "Bull" Halsey. He was a short, stocky man and swaggered across the deck, and whenever he spoke, it was in very strong terms about the Japanese and he inspired everybody in hatred of the enemy.

He had a motto, "Kill Japs and kill more Japs."

Yes, that's right. He came on board several times. In fact, we gave him his annual physical examination on the Montpelier. I remember he had a wart we had to remove from his hand. He was a very impressive character and inspired everybody.

Did he come aboard more than once?

He was on board several times, as I recall, once when he gave some Purple Hearts to some wounded men on the ship.

But he certainly was a memorable character.

Oh, yes. And of course, Admiral "Tip" Merrill was also one of our heroes.

Highly respected, I gather.

Highly respected, and we all liked him very much. He did a great job.

Did he use the Montpelier for his flagship several times?

Yes. The Montpelier was the flagship for Cruiser Division Twelve, which consisted of Montpelier, Columbia (CL-56), Cleveland (CL-55), and Denver (CL-58). Of course, Arleigh Burke, "31 Knot" Burke, was always a favorite of ours.

What do you remember about him?

Oh, I remember he was a tall, handsome Swede and very likable and down to earth. Nothing put-on about him. He greatly inspired his destroyer squadron.

The Little Beavers.

The Little Beavers. He came on our ship several times, and I liked him very much. I saw him again later on when I was in Bethesda at the Naval Medical Center. As a matter of fact, we were on the same bus together going into Washington. I looked at him and I thought, "Can that be Arleigh Burke?" I went over and said, "Admiral, how are you?" and I told him who I was. We sat there and chatted about the old times in the South Pacific.

So he came aboard more than once.

Yes. And then, too, we saw him up at the club, you know, the officers' club. As I recall, from time to time we had quite a number of dignitaries there. The officers' club up on top of the hill at Purvis Bay was a very nice club high on a hill that overlooked Iron Bottom Bay to Guadalcanal, and the ships were all spread out beneath. The officers would gather there to talk over things. Often we were interrupted in our social activities to be called suddenly back to the ship because of a need to leave immediately, since the Japanese "Tokyo Express" was on the way down, so back into the grindstone of the war again.

Fahey talks about life on the ship from his point of view, which is obviously different from your point of view. He said sometimes it got so rigorous and the routine became so repetitive, that it was easy to forget what day it was. Then he goes on and says, "Some of the men have not left the ship in seven months. We seldom get a night's sleep. The heat and the tropical storms and humidity are wicked, and, of course, the Japs keep the pressure on us." He says that whenever it was possible, the men would sleep up on deck. It was the only place cool enough. But he said that the risk of that was a tropical rainstorm. You'd be asleep, and suddenly the heavens would open up. Did you ever sleep up on deck?

No, I never did sleep up on deck. I found it more comfortable to stay below.

He talks at one point about bread with bugs in it. Do you remember that?

Not specifically, but I know that at times we were low on rations when a supply ship hadn't come in for some time, and we were eating food that might not have been quite as fresh as you'd like to have it.

What do you remember about the times that you went into Espíritu Santo?

Well, that was a big base. There were a lot of ships there. We even had a dry dock there, and Montpelier went into dry dock there once for scraping the bottom and that sort of thing. Well, my main memories there are of seeing people from other ships and going ashore and having baseball games and sometimes beer parties, the recreational side of the picture. It was a big base.

You mention at one time seeing the hospital ship Relief in there. Did you ever have any interaction with the people aboard the hospital ship?

Not really, no. I went aboard when the hospital ship was at Saipan.

Was that the Relief?

I'm trying to remember what the name of it was. It may have been. I can't recall the name of it right now. But anyway, I was impressed with the number of casualties being brought on the ship from Saipan, and many of them were in pretty bad shape--blood-encrusted and covered with flies. It was sort of a horrifying experience to see the number of our men wounded, but, fortunately, they would get good care on the hospital ship.

We had an unfortunate death on the ship while we were at Saipan. Two men went down into a void to get some supplies. The void had not been ventilated properly and they both passed out. I was able to resuscitate one of them with artificial respiration, but the senior medical officer couldn't get the other one to breathe again. So I went over to the hospital ship after that, and they took care of the body for us. They had better arrangements to do that. We had no arrangements at all for preserving bodies.

You talk about the visit of the First Lady, about Eleanor Roosevelt. Do you remember that visit?

I remember that she was a very charming person and had a nice smile and that she was very interested in the people. I heard she went to the base hospital and saw each patient. They say she showed great concern with each patient. She was just a remarkable woman, you know, a lot of charisma.

What do you remember about the bombardment of Guam?

I remember the bombardment of Guam went very well. As I recall, it was a much shorter campaign to take Guam than Saipan, which really caused us trouble.

What about Saipan?

The Saipan campaign was exciting, because at that time our warships were offshore bombarding in support of the landings. At times I got topside to see the action. It was exciting because we could see the progress of the troops. They had orange markers that were moved forward as the troops progressed. Also we could hear the radio contact between our ship and our scouting plane, which was directing our fire. We could hear the conversations, such as--"You need to go so many yards this way or that," and then our ship would fire and there would be an explosion where we hit. In the Marianas campaign the taking of Saipan was the longest and most difficult. We lost a lot of men. As I said, I was able to get topside at times to see the battle firsthand. When I think of Saipan, I remember the continuous noise of the guns, the flares at night, the ack-ack of antiaircraft fire, the ammunition dump explosions, and the smoldering towns. And then the terrible time when the terrified civilians were herded to the northern point of the island and told by the Japs that they were going to be tortured if captured. So many of them jumped off the cliff, later named the Suicide Cliff. I remember the horrible sight of bodies floating around the ship--men, woman, and children--for several days.

You actually saw that?

Yes. It was pretty sad to see these women, and particularly children. But we couldn't do anything about it.

Were there hundreds of them around?
There were lots of them.

The Leyte Gulf campaign came, and that's when the aircraft couldn't make it back to their ships.
The Turkey Shoot?

Yes.
The Marianas Turkey Shoot. That was a very interesting, exciting experience. The ships were not actively involved in this battle. It was an air battle, mainly. When our carrier planes returned, after downing hundreds of Japanese planes, it was dark. It was the first time that they tried to land on a carrier at night. The whole fleet lit up like a Xmas tree to help them land. Many of the planes ran out of fuel before they could land, and went into the drink. Some of them landed on carriers that weren't their own, because they just needed any place to get down. A lot of the plane personnel were picked up by destroyers later in the water. But it was a big victory for us because our planes downed so many more Japanese planes than we lost.

That was the end of the Japanese air fleet, or so everyone thought.
That was a big blow to the Japanese.

Their best pilots were lost.
Yes. But we were so disappointed our ships weren't able to engage the enemy. They escaped to the north.

But then after that, then you started to encountering this new threat--the kamikaze planes. I found in the after-action report the episode that took place on the 27th and the 29th of December of 1944 in which there were four attacks made on your ship in, they say, 3 minutes. There were four kamikaze planes headed for your ship. Were you down in your battle dressing station at that point?
No, I wasn't on the ship at that time. I left the ship in September of '44.

So you didn't encounter any of the kamikaze attacks?
No. The kamikaze attacks occurred later.

You were relieved in September of 1944, and where did you go then?
I was given some leave, and I took a little tour of the West and then went to visit my family, who was living in Alabama at that time, and then on to my next assignment, which was at the naval hospital in Charleston. I think I mentioned in my little booklet that I was uncertain as to what direction I wanted to go in medicine at this point. I did go into internal medicine at that time and then later went to the National Naval Medical Center.

This is Bethesda?

Bethesda, yes. I was still uncertain what I wanted to do, and continued in internal medicine there. Then something happened that changed my whole career, and that was the atomic bomb. I got a call from Washington to come down, and they wanted to talk to me about a possible position. They told me they were looking for doctors that would specialize in radiological safety associated with an atomic bomb test to take place and wondered if I might be interested. I was floundering at that point, as I said; it sounded very interesting.

Was this late in '44, like maybe November of '44 or somewhere around there? You got off the ship in September of '44,and then you went back to Bethesda and you were there for some time at the hospital in internal medicine. This was early '45.

Yes. At that time, BUMED, with a lot of foresight, realized the importance of atomic medicine. There were several other Navy doctors involved in this. There were about 10 of us M.D.s from the different services that were called on to join a nucleus group to specialize in radiation effects, radiation measurements, and radiological safety.

So we were sent around the country to different Atomic Energy Commission (AEC) laboratories and we learned how to use instruments to measure radiation. We learned about the radiation effects and were given specialized training. We turned out, then, to be the corps of medical experts to join in the Bikini operation--Operation Crossroads--the first test in Bikini.

This was in 1946.

Yes. The Bikini test proved to be one of the most challenging events of my career. There were a tremendous number of ships involved and thousands of personnel. We were testing the effects of the atomic bomb on Navy ships. At that time, the effects of atomic weapons was practically unknown, and so this was a new field we were getting into.

Did you go out to Bikini Island?

Yes. Following training of 4 or 5 months in different AEC laboratories I went to Bikini as a radiological safety officer. I was on a patrol boat that went in after the first atom bomb test. This first explosion, was an awesome sight, the first of many I would later see.

How far away were you from the explosion?

We were about 7 miles away.

You were on a ship?

I was on a ship. And then the ship came and let us off into the water just outside of Bikini. I had eight men with me on our patrol boat, and we steamed into the lagoon, and with some trepidation, because we really didn't know what we were going to face. The effect of the bomb was obvious as some of the ships were damaged and smoking. But fortunately, this was an airburst with no fallout and there was little radiation involvement. We were able to clear the ships for boarding soon.

But the second test, the bigger test, was an underwater test, and that proved to have a much more serious aftereffect, because the radioactive material was mixed with the water and the ships were contaminated. It was a much more difficult operation. I was on one of the ships that had to do with recovering the technological instruments, clearing personnel, and being sure they were showered and properly decontaminated. So this was quite an experience for me.

I know it was very controversial. There were apparently incidents where sailors were sent aboard to hose down the decks and had very little protection, because people didn't understand, the concept was so new, the whole idea of radioactivity.

Well, the hosing down did some good and reduced the radiation levels considerably. Of course, we didn't know too much about radiation at that point, and so we were trying to be very careful and bent over backwards to be sure that people didn't get too much radiation. In the meantime, the algae had taken up radioactivity from the water and the sides of the ship became radioactive, so we even had to move people for sleeping in more toward the center of the ship so that they wouldn't get irradiated.

So your observation ships, not just the target ships but the observation ships, had serious contamination.

That's right, from the water in the lagoon. I had to testify before the Senate Veterans Committee about 8 years ago about the situation at Bikini. I told the committee that my overall impression was that radiological safety was carried out in a very satisfactory manner and that there were very few cases of overexposure to radiation.

Following the Bikini operation, target ships were towed down to Kwajalein and I was ordered there to check the ships as they came in and removed ammunition. So we had our men wear respirators since we were afraid that plutonium and other fission products might be present on the ships. That proved to be a very tricky operation, with the difficulties of going down in a hot ship and bringing back all the ammunition.

What condition were those target ships in at that point?

In varied conditions. Some of the target ships were more damaged than others. I remember one of the ships, the Prinz Eugen. It was a beautiful German cruiser, and when it was towed into Kwajalein we went on board. I couldn't help but admire the beauty of the ship. Inside was all the silverware, all the fine furniture. Everything was left intact, and it was in pretty good shape, we thought. And then about a week later, we got word that she was sinking. Apparently, one of the seams in the ship had been loosened by the atomic blast. I went on board when she was beginning to go down. We got off in time, but she went on under and even to this day, in the lagoon, the stern of that ship can be seen just above the water level.

So it was in port?

It was in port at Kwajalein, the atoll of Kwajalein.

Later, I was ordered to Honolulu. There, operational ships arriving from the Bikini test had to be checked to be sure they were not dangerously radioactive. So I had the job of going out on these ships and checking the amount of radiation.

How did you do that? Geiger counters?

Yes, with geiger counters. Unfortunately, the number of whaleboats and small boats attached to the ships had to be sunk because they went above a certain level that we had established for radiological safety. When I think back on it, we were bending over backwards. We didn't realize just what levels of radiation would be considered dangerous or whether it was possible they could be decontaminated. So we had to sink a lot of these boats. We took many of them out to sea and sank them with machine guns.

The small boats?

Yes. Think of all of the money that went down in the water from that.

When you saw your first atomic explosion, you were on the deck. Did you have any safety goggles or anything?

Oh, yes. We had goggles on. It was a very awe-inspiring experience, particularly the Baker shot, the underwater shot, where this big dome of water rose out of the lagoon. One ship was just pushed upright into this dome of water, and then it went right down and sank. So that was very impressive, and, as I said, we learned a lot from the Bikini experience. We learned about how little we knew, too. But the experiences we had certainly served us well in subsequent tests.

Were you involved in other tests after Crossroads?

Yes, Operation "Greenhouse" at Eniwetok and several of the Nevada tests. Before I leave Bikini, I might point out another interesting thing that happened. When I later was assigned to the Naval Radiological Defense Laboratory in San Francisco, they decided to sink the target ship from the Bikini operation which was the Nevada (BB-36). She was an obsolete battleship and was contaminated to some extent. They decided the best thing to do was just to sink her. So I got word that I was to be the radiological safety officer for that operation and went to Honolulu and boarded a destroyer.

There were some experts in the different types of Navy bombs there. The Nevada was towed out south of Honolulu about 30 or 40 miles or so, and our destroyer then went up to the Nevada. The men were setting tremendous bombs on the deck of the ship. They were 500-pound bombs. They were being set all around the deck of the Nevada. As I remember, there were three experts to prime the bombs and get them ready for detonation. They said, "Doc, would you go along with us?"

I said, "Well, okay." I was a little leery about it because of the size of these bombs.

So the four of us got on the Nevada. The destroyer went off about 7 miles in the distance--a safe distance--and left us on the Nevada. I watched these experts as they inserted gun cotton and electric wiring. I was a little apprehensive, to say the least. They finally came and got us, and we went back out a safe distance, and eventually the bombs were set off by what I think were radio signals.

There were tremendous explosions all over the Nevada, which must have made holes way down into the bowels of the ship. But you know, she didn't go down. She still floated. Pretty soon the Navy sent in torpedo planes from Honolulu and, after a long siege, the ship finally sank. But that ship didn't want to give up easily.

So you saw those initial explosions of the 500-pound bombs going off. What did that look like?

Oh, it was just a holocaust. It was a tremendous blast all over the ship, and I thought, "Oh, she'll never survive this." But there she was, sitting in the water.

Not even listing?

No.

Did you see you see the planes come in and drop the torpedoes?

Yes. We were there when the planes came in. They were able to put torpedoes into her hull. I've often wanted to look up the Nevada and see what operations she'd been involved in before that, because it was a gallant ship.

Was this the afterend of Crossroads?
Yes.

So the Nevada survived the airburst in the first test.
And she survived the underwater burst, too. Later the Saratoga (CV-3) and a number of other ships from the Baker test at Bikini went to the bottom. Bikini now is an interesting spot for scuba divers. They like to come into the lagoon and dive down amongst all the wreckage of these ships that were sunk in Operation Crossroads.

What did you do after Crossroads?
I went to the Naval Radiological Defense Laboratory and was given a semester of training at the University of California in medical physics. I would like to say at this point that the Bureau of Medicine and Surgery realized early on that this field of atomic medicine was important, and their support has been invaluable to me and to many others in this field of atomic medicine. So they gave me 6 months there, and following that--

Where was that school?
The University of California at Berkeley. Unfortunately, I didn't complete a Ph.D. degree there, because I had inadequate background in calculus and some other mathematics that were necessary. But I did profit by that one semester there.

Then the Navy allowed me to get into medical research. I wanted to study the effects of radiation in animals, and they granted me a year's sabbatical at the University of Chicago at Argonne National Laboratory. There I studied the effects of radiation on animals. I was particularly interested in the effects of radiation on the gastrointestinal tract, since I knew that nausea and vomiting were frequent symptoms of early radiation exposure.

After my year at Argonne, I was ordered back to the Naval Medical Research Institute (NMRI) in Bethesda, where I spent the next few years continuing my research efforts. I was able to publish a number of papers on the effects of radiation on the gastrointestinal tract of animals.

Then I was called back to one of the atomic bomb tests in the Pacific. I was the radiological safety officer in one of the big tests they called Greenhouse Operation at Eniwetok in the Marshall Islands.

That was in the '50s?
In 1952. That was an interesting experience. In addition to my duties as radiological safety officer, I was able to participate in the research on animals exposed to the atomic bomb. They had a number of animals they brought out from the Naval Medical Research Institute and established in different positions so they could study the effects of radiation.

Our radiological group lived on a little island in the atoll. Following one of the tests, I got in my boat with the other monitors that we had with us. We headed north to the site of the explosion and when we got there we didn't find anything particularly impressive as far as radiation was concerned. But on the way back down, we started measuring increased radiation. The fallout from this particular bomb had circled to the south, and the island we lived on was the

hottest place we found. There was a fair amount of radiation there, but not in really dangerous levels. Again, we had to move people in from the sides of the tents and bunks and barracks to reduce the radiation levels. That was an interesting experience. We had lots of interesting work going on with plants and animals exposed to the bomb.

The island that you were on for the Greenhouse, that was--
Japtan.

It was in the Marshalls?
In the Eniwetok Atoll. You know an atoll has a number of islands around a big lagoon.
I was also involved as radiological safety officer in the Nevada atomic tests. One of the operations there involved a civil effects testing group which set up buildings and houses to test the effects of bombs. We also had some animals in that experiment that we were studying for radiation effects.

Are we talking about thermonuclear bombs at this point or are these still fission weapons?
No, these are not hydrogen bombs we're talking about. These were conventional nuclear bombs, but used in different ways.

Conventional atomic or non-nuclear conventional weapons?
Yes, conventional atomic.

Whereabouts in Nevada was that?
Near Las Vegas. The Nevada Proving Ground at Camp Mercury.

Near where the AEC was?
Yes, north of Las Vegas. There's an area there that had been set aside for testing. That's where we carried out a large number of tests.

These were all above-ground tests?
Yes. Now more recently they're restricted to underground tests.
And so back at the Naval Medical Research Institute, I continued to carry on my research. And then an accident occurred that was to change my whole career, and that was an atomic accident at Bikini during what was called "Operation Castle." One of the shots was called Bravo. It was a large thermonuclear device. The radioactive cloud went in a direction that they didn't expect it to go, in an easterly direction toward inhabited islands. They were having difficulties tracking the radioactive cloud. Some of the planes' tracking equipment didn't work properly, and the task force was very slow in realizing that a serious situation was developing.
There were 28 Americans at a weather station on one of the little islands called Rongerik. Suddenly they saw this tremendous bomb go off. There was a dustlike material that came down, and the radiological measuring instrument went off scale. They got in touch with the headquarters in Kwajalein and told them that they were having serious fallout. Well, the message got garbled somehow, and the task force didn't realize even then that there was a serious fallout situation developing.

Then a plane went in to check at Rongerik where these men were, just to see how things were. They found that the levels were too high, and that they had to get the men off. It was recommended that Rongelap Island, where the Marshallese people lived, and possibly Utirik, be checked immediately because they might have been getting more radiation even than on Rongerik.

In the meantime, on Rongelap the people had also seen the explosion. They saw this big red ball rising into the sky when the bomb went off at Bikini, which was west of them. They described it as looking like the sun rising in the west. And very soon thereafter, there was a tremendous shockwave that knocked coconuts out of the trees and windows out of the houses, and the people were very scared. But then things quieted down, and they went about their business. Then a couple of hours later a snowlike material began drifting down on the island. Pretty soon everything was covered with a white coat. The health aides said, "Don't drink the water." The water turned yellow. They told the people not to drink the water, and during the first day or so people began getting nauseated and lost their appetites, typical early affects of significant radiation exposure.

On Utirik, the island still further away, there was considerably less fallout. The people on that island saw the explosion, but they saw no visible fallout, and so they were not as concerned about it.

The Task Force sent a plane to Rongelap and realized that there was serious exposure there. The plane took off some of the older and sick people. There were about 86 Rongelap people involved in this. They then sent a destroyer in to take off the remainder of the people.

The events that transpired during this period are very interesting and really make quite a story in itself. I can't go into all the details because it just would be too long. The people on the ship set up a canvas area for the people for sleeping and gave them Navy chow and got them to shower. Sailors gave them fresh clothing and they were taken back to Kwajalein.

What shape were they in at this point when they were on the ship?

During the first 24 hours, a lot of them were nauseated and some even had diarrhea, nausea, and vomiting.

In the meantime, they sent a destroyer to Utirik to pick up the 159 people there. The ship had trouble getting into the lagoon so they decided to try to take the people off Utirik on the seaward side of the island where the surf was very rough and broke over a coral reef.

One humorous thing occurred. The exec on the destroyer was going ashore to interview the natives and tell them about the problem that existed, and his tow line got caught in the reef. He was madly rowing, trying to get toward the shore and getting nowhere. The crew stood on deck laughing. Finally, he got his line free and was able to get ashore.

They told the people of the seriousness of the situation, and then they tried to evacuate them through the surf. It was a very dangerous operation. Some of the people had coral cuts trying to get in small boats over the reef to the ship. But they managed to get everybody off safely, and that ship headed back for Kwajalein, as well.

What shape were these people in?

These people had not suffered any ill effects. The radiation doses they received were low enough not to produce any of the nausea, vomiting, and other symptoms that I described in the Rongelap people.

In the meantime, the task force realized the seriousness of the situation. They finally got in touch with Washington and said, "We have a group of natives and 28 American men that we've evacuated to Kwajalein. Request emergency medical team to evaluate the situation."

So the AEC turned to the services, and particularly the Navy, and, fortunately for the Navy, several of us had been involved in radiation effects. Dr. [Eugene P.] Cronkite, who lives right near here, is a rear admiral, by the way. He was then appointed by the Navy to head up the first emergency medical team. So it was fortunate that we had a group of people at the Naval Medical Research Institute that had the training and the expertise for such an emergency.

In short order, we had an emergency medical team organized including equipment and everything. In 8 days, we were on the way to Kwajalein. In the meantime, the natives had been set up in a barracks building and had been given a preliminary physical examination by the Navy doctor at the dispensary. When we got there, they had established an area where we could set up our examinations. We constructed our examining facilities and started immediately on our examinations of all the people--extensive blood work and complete regular physical examinations.

Although the AEC reported that people were not seriously affected, we knew that this was not the case because of the early symptoms and the fact that at this point we were beginning to see their blood levels dropping and radiation burns of the skin were appearing.

The red blood cells?

Platelet counts were dropping, and lymphocytes particularly.

These are the Rongelaps?

Yes, the Rongelap people. It was not so evident in the Utirik people. Eventually, the mean counts of the Utirik people were slightly depressed and the platelet level, but they did not show the acute effects seen in the Rongelap people.

I was in charge of the examinations of the skin and after about 8 or 10 days I noticed there were some peculiar dark areas on the skin developing. It turned out that three-fourths of the Rongelap people developed beta burns of the skin where the fallout had been deposited on the skin. For the next 3 or 4 weeks, we had a large number of people, particularly children, that showed these burns and spotty loss of hair on their heads.

Fortunately, these people had received a sub-lethal dose of radiation, estimated at 175 rad for the Rongelap people with considerably lower doses for the Utirik people.

Was there any type of treatment that could have been given or were you just simply observing these people?

Well, we were quite concerned when the blood levels started dropping. At first we didn't know really how serious the situation was. There weren't any good dose measurements of what the people had received, and we were using the clinical effects as an indication of the degree of radiation exposure that they had received. Naturally, we were very concerned when the blood levels were continuing to drop during the first few weeks. We had even contacted Admiral [RADM Bartholomew] Hogan in Honolulu, who was the Pacific medical officer there. He agreed to furnish a hospital ship if it was necessary. Fortunately, it was not necessary because there was an improvement. The blood counts started going up and the beta burns began healing. After some time the hair was regrowing. Nevertheless, we realized that from then on we were

going to have to continue examining these people because of the possibility of effects of radiation developing later.

You couldn't tell at this early date whether there were any thyroid effects?

Early urine analyses showed that iodine was one of the principal radio-elements that had been absorbed and that the thyroid must have received a substantial dose. Strontium 90, was up near the permissible level, but it was not dangerously high.

We didn't appreciate the full extent of dosage to the thyroid gland of the people at the time. We were not able to reconstruct then what the true dose was. The subsequent development of thyroid tumors and thyroid problems in the population showed that the dose levels were considerably higher than we had originally thought.

At the end of our examinations around May, the Utirik people were returned to their home island, because it was considered safe, and the Rongelap people were taken down south to Majuro Atoll to live on a small island, because Rongelap was too radioactive to move them back.

This was in May 1954?

Yes. For the 2 years following the accident we carried out the examinations. And then I left NMRI and came to Brookhaven National Laboratory as a senior scientist.

You left the Navy at this point?

I left active duty, but I stayed in the reserves. I left because I wanted to be in one place where I could carry out research and not run into being moved every so often.

This would have been 1955, then.

In 1956.

You resigned in '55?

Yes, but maintained my reserve status at Brookhaven, where we had meetings once a week.

There was a reserve unit there?

Yes. Then I was asked to head up the continuing examinations of the Marshallese people. For 25 years that was my main work, to take medical teams with the best medical experts I could find, out to the Marshall Islands once or twice a year and carry out extensive examinations and treatment of all the exposed people. This soon expanded to include unexposed people on the islands. So we had to increase our workload.

When did the Rongelap people didn't return to Rongelap?

They didn't get back until 3 years after the accident, when a new village was built for them.

What kinds of residual radiation was there on Rongelap at that time?

There was some residual radiation, and this is what we had to carefully check. As medical teams, we had the responsibility of monitoring the people for the amount of radiation they were getting from the environment, as well as the absorption of internal radioactive materials. Our medical findings have been widely published in medical journals. As a medical

team, we had duties that were beyond what one would ordinarily expect on a medical team due to the radioactive environment. In addition to that, we soon ran into problems that were not medical but political. The U.S. had caused harm to these people. We were called the AEC doctors, and as such were partly responsible for causing their problems. In spite of the fact that we were trying to help them and treat them, as doctors we faced this dilemma. It was disconcerting to know our data was viewed with suspicion, mainly by the politicians. Because of this, the Rongelap people were moved from their home island in 1985 and have since been living on a small island in the Kwajalein Atoll under unsatisfactory conditions.

In a booklet recently published, I discussed the problems we faced. There were many problems, particularly psychological problems. The people imagined everything that happened to them was due to radiation exposure, and everybody that died was because of radiation exposure.

You said earlier there were about 85 people concerned here?

There were 86 Rongelap people and 160 Utirik people.

What about the Americans? You had mentioned the Americans.

Twenty-eight American servicemen were exposed on Rongerik. A few of them developed mild beta burns of the skin, and there was some slight depression of blood elements. When we finished the initial examinations in May, the servicemen, who were mainly Army, were sent to Honolulu to Tripler Hospital, where they were under the continued care of Army physicians. We never had anything more to do with these servicemen.

We are still continuing the examinations and treatment of the Marshallese people. Even though I retired 11 years ago, the surveys are still being carried out. I think we've contributed a lot to helping these people, in spite of all the political difficulties we've had and the hardships that we've had to endure going out to the islands with medical teams and traveling under difficult circumstances.

Did the Navy provide the AEC the ships to do this?

In the early years, on two occasions, the Navy furnished LSTs, but since then the Navy was not really involved directly in the surveys. We formed our medical teams from doctors all over the country. However, there were a number of Navy doctors and other service personnel that did participate in the surveys. We had outstanding physicians from all over the United States that participated, and we were grateful for their wonderful response. People were willing to go out there without any additional pay or anything just to help with the project. Take the experts in thyroid, for instance. At the National Institutes of Health we've had several people, such as Jack Robbins and Ed Rall, who are thyroid experts. From Cleveland we had Dr. Brown Dobbins, a thyroid surgeon who's done many of the operations on the Marshallese. We've had to bring back around 40 people for thyroid surgery in the United States for removal of thyroid tumors. Most of them came to Brookhaven Hospital first, where we did careful examinations, including complete thyroid studies, before they were taken to other hospitals for surgery.

How many of these Rongelap people are still around who were exposed originally?

At least a third of them have died. I'm not sure of the exact figure now. After all, this happened 40 years ago. That's a long time. So that most of the older people have died.

What condition are the younger ones at this point, let's say 1993?

As far as I know, they're all in good shape. Not a single person has died from thyroid problems. However, one died of leukemia and several other deaths may also be related to radiation exposure.

Of that whole group, the original group?

Out of the whole group.

They had many thyroid abnormalities, but no thyroid deaths?

No. Thyroid cancer is one thing that's amenable to treatment. We've had a number of thyroid cancers, but we detected and removed them early. Because we were able to examine these people carefully year in and year out we have been able to reduce morbidity and mortality.

So you stayed active, then, in atomic medicine. That became your career following the Navy.

That became my career, atomic medicine. And as I say, we have a lot to be thankful for from the Bureau of Medicine and Surgery for all they did to promote atomic medicine and to make it possible for us to become proficient in this field.

Do you recall earlier, when you were still in the Navy on active duty, let's say '52 and on, or even earlier when you first got involved in Crossroads, do you recall any of those people at the Bureau who got you involved in this?

Well, [RADM Clifford] Swanson was there and later Admirals Pugh and Chrisman.

Clifford Swanson was Surgeon General.

Yes. Swanson wrote me a very nice letter once concerning the sinking of the Nevada thanking me for what I had done. I received quite a number of commendations because of the involvement in these various operations in which I participated.

Before closing I would like to express my gratitude to my wife and family who had to carry on during my frequent and long absences from home required by my duties.